

# Short Communications

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## First Reported Case of Classical Polyandry in a North American Woodpecker, the Northern Flicker

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**ABSTRACT.**—During a study of Northern Flickers (*Colaptes auratus*) nesting in central British Columbia, I discovered a polyandrous female attending two nests 447 m apart. The phenology at the two nests was staggered so that the female took incubation shifts and fed nestlings at both trees. Hatching success was typical but the female appeared to divide her provisioning effort between the broods. At one nest, only about 20% of visits were by the female, compared to a typical rate of 50%. Polyandrous mating benefited the female, who fledged all six nestlings in one brood and all seven in the other. The mean number of fledglings for monogamous females in this population was 5.9. Two other cases of polyandry possibly related to human disturbance are discussed. These results suggest exceptions to the idea that, in Picidae, the full contribution of both genders during incubation and brood rearing is required to fledge young. *Received 1 October 2001, accepted 5 June 2002.*

Classical polyandry is a mating system in which a single female mates either sequentially or simultaneously with more than one male during a breeding season while males mate with no more than one female. In addition, each male has his own nest and cares for his own young (Oring 1982, 1986; Ligon 1993). Bird species practicing classical polyandry are rare, most examples being within the order Charadriiformes (Ligon 1993). Most woodpeckers, family Picidae, are socially monogamous (Short 1982, Cramp 1985) although 2 of the 22 North American woodpecker species have unusual mating systems: cooperative breeding in the Red-cockaded Woodpecker (*Picoides borealis*) and Acorn Woodpecker (*Melanerpes formicivorus*), and also polygyny in Acorn Woodpeckers (Ligon 1970, Walters et al. 1988, Koenig et al. 1998). Here I report a case of classical polyandry in the Northern Flicker (*Colaptes auratus*), a species

which typically is monogamous (Moore 1995).

I studied Northern Flickers during 1998–2001 at Riske Creek, British Columbia, Canada (51° 52' N, 122° 21' W). For details of the study area see Wiebe (2000, 2001) and Martin and Eadie (1999). Each year, reproduction at 80–90 nests was monitored closely and >95% of adults on the site were color banded for individual identification. Two bands were placed on each leg and an individual bird was known by four letters standing for its color combination. Trapping methods and details about reproduction and morphology are in Wiebe and Swift (2001) and Wiebe and Borlotti (2001).

I discovered the case of polyandry when female RAGG, known to have incubated at Nest A with male AGKG, was recorded on videotape on 14 June performing incubation duties at Nest B (447 m from Nest A) with male BAKG (Fig. 1). The first nesting attempt of male BAKG that season had been at Nest C and had failed about 28 May after he was evicted by European Starlings (*Sturnus vulgaris*). His original mate, female BAKY, was not seen again and he renested with RAGG who laid her first egg at Nest B on 4 June (Fig. 1). While laying eggs in Nest B, RAGG continued daytime incubation shifts at Nest A. Chicks at Nest A hatched on 8 June and RAGG then spent most of her time incubating at Nest B until the chicks there hatched on 20 June. Between 20 June and 2 July, RAGG fed chicks at both nests but accounted for only 2 of 12 feeding visits at Nest A (8 h of observation over 3 days). At Nest B during one day (14 h) of filming, she fed the chicks on 6 of 23 visits. All six chicks that hatched at Nest A fledged on 5 July and all seven chicks fledged from Nest B on 14 July.

Classical polyandry is rare in Northern Flickers. With intensive nest monitoring and

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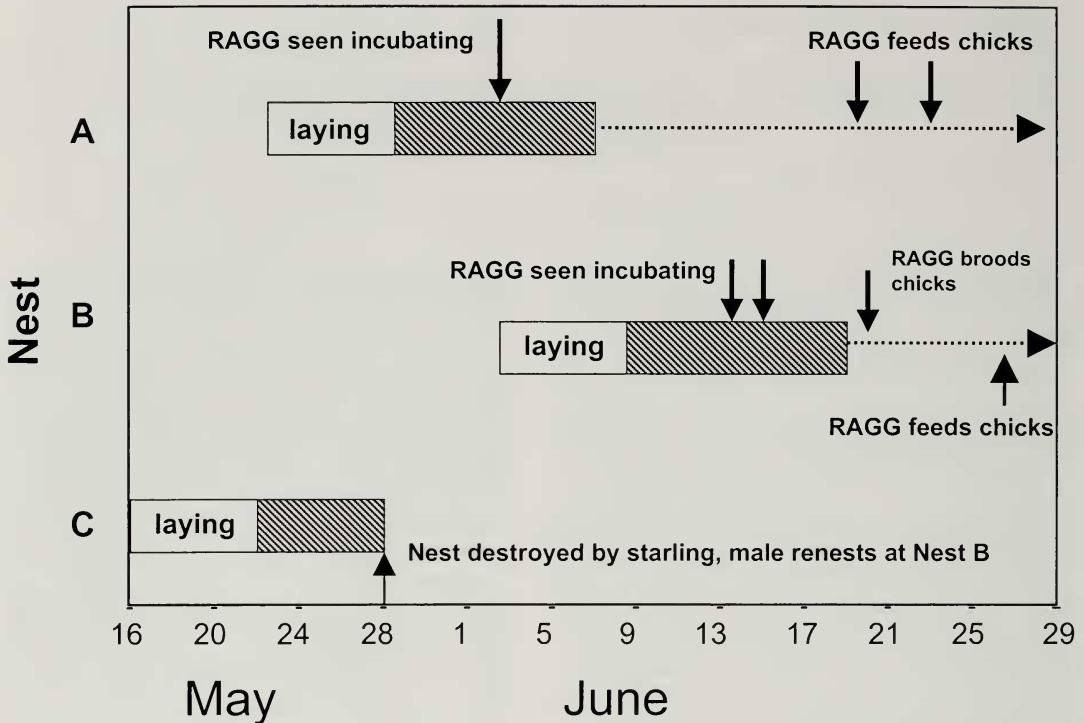


FIG. 1. Reproductive phenology of three Northern Flicker nests during 2001 at Riske Creek, British Columbia. Polyandrous female RAGG attended two nests at Nest A and Nest B and paired with two males. Her second nest, at Nest B, was the renesting attempt of the male originally from Nest C.

color banding, I should be efficient at detecting polygynous relationships, but have uncovered only this one “spontaneous” case among 352 nesting attempts monitored during four years. Two other cases involved females that abandoned their mates during incubation and renested with a neighboring male. However, these two females may have abandoned as a result of being trapped at the nest; they did not continue to attend chicks at their first nests although their first males successfully fledged a small portion of the brood alone. In contrast, female RAGG was banded in 2000 and was not retrapped in 2001 until after initiating a polyandrous relationship; therefore, human disturbance was not a proximate cause.

There are only a few reports of polyandry in other woodpeckers. Willimont et al. (1991) and Kotaka (1998) each observed one case in the West Indian Woodpecker (*Melanerpes superciliosus*) and the Great Spotted Woodpecker (*Dendrocopos major*), respectively. Wik-tander et al. (2000) reported five polyandrous female Lesser Spotted Woodpeckers (*D. mi-*

*nor*) out of 68 breeding attempts over six years, and those were associated with a sex bias toward males in the population. Nocturnal incubation by only males within Picidae may predispose woodpeckers to polyandry, but Ligon (1999) suggested that the evolution of such a mating system was constrained because both members of a woodpecker pair were necessary during incubation and provisioning to fledge young. This may be the case generally, although in two cases at Riske Creek, male flickers that were abandoned by their mates during late incubation successfully raised young alone. The case of spontaneous polyandry I observed was advantageous for the female flicker, which fledged 13 young compared to a mean of 5.9 in the general population ( $n = 227$  including only broods where some nestlings hatched; K LW unpubl. data). Both sexes typically feed nestlings at similar rates (Wiebe and Elchuk in press), but in this case the males apparently compensated for reduced provisioning by the polyandrous female at both nests because no nestlings starved.

A number of proximate factors may promote polyandry in woodpeckers. The skewed population sex ratio observed by Wiktander et al. (2000) was not apparent at Riske Creek, but breeding densities were high: 13 other flicker pairs nested within 1.2 km of the polyandrous group. Female RAGG was two years old according to molt criteria in Pyle et al. (1997) and her first mate at Nest A was six years old. Since flickers typically mate with individuals in their own age class (KLW unpubl. data), it is unlikely that RAGG initiated a second nest with BAKG, a yearling male, because of his quality or experience. It is uncertain whether BAKG knew the reproductive status of female RAGG when he re-nested with her, or whether he was duped; the motivation to re-nest quickly may be great given the short summers at this relatively high latitude. Since home ranges of flickers overlap extensively (Elchuk and Wiebe 2002), it is almost certain the two males were aware of each other and nest sites in the area. Regardless, the timing of the two nests was staggered sufficiently so that the female could incubate at both, contributing parental care during a critical time of reproduction.

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